OBJECTIVES: To identify the dominant scheme of mRCC second-line target treatment (compare two alternatives – Axitinib and Everolimus). **METHODS:** Based on the Markov model, the cost-effectiveness analysis was realized. Overall survival, annual survival rate, time to progression of disease and direct cost of mRCC treatment was evaluated. Costs analysis included: costs of two target therapy lines (Sunitinib as a first-line in combination with Axitinib or Everolimus treatment); cost of 3 and 4 grade side effects compensation; cost of diagnosis and inpatient care; cost of disease progression; cost of palliative and best supportive care. **RESULTS:** During the pharmacoeconomic analysis of Axitinib use as a second-line therapy for mRCC, it was found that this target therapy regimen would significantly increase the time to progression and the overall survival which amounted to 22,75 months, with an annual survival rate of 68%, 38% and 17% of patients following the first, second and third year of treatment, respectively. Despite the high cost of this treatment regimen, reaching 51.327 EUR at the horizon of ten year study, the treatment regimen including Axitinib will be characterized by the lowest values of the cost-effectiveness ratio, reflecting the costs incurred by the health care system for patient's life saving, and incremental cost-effectiveness ratio, which was less than willingness to pay threshold in Russia. **CONCLUSIONS:** It is shown, Axitinib use as second-line of target therapy in patients with mRCC is the most preferable treatment regimen then Everolimus from the pharmacoeconomic point of view.

PCN142

COST-EFFECTIVENESS ANALYSIS OF HYDRALAZINE AND MAGNESIUM VALPROATE LP ASSOCIATED WITH TREATMENT FOR ADULT PATIENTS WITH METASTATIC RECURRENT OR PERSISTENT CERVICAL CANCER IN MEXICO

Soto H[1], Sanchez K[2], Escobar Juárez Y[2], Constanzo A[2], Fernandez Z[3], Melendez C[3]
[1]*Iteliness Consulting, Mexico City, Mexico,* [2]*HS Estudios Farmacoeconómicos, Mexico City, Mexico,* [3]*Psicofarma S.A. de C.V., Mexico City, Mexico*

OBJECTIVES: Demonstrate through an economic evaluation of cost-effectiveness that using Hydralazine LP magnesium valproate (Transkrip ®) associated with first-line chemotherapy in the treatment of persistent or recurrent metastatic stage IVB cervical cancer, type not candidates for surgery or radiotherapy is more effective than the alternatives available in Mexican health institutions: cisplatin with topotecan (CT), cisplatin with paclitaxel (CP), cisplatin with vinorelbine (CV), carboplatin with paclitaxel (CaP), paclitaxel (P), cisplatin and cisplatin with gemcitabine © (CG). **METHODS:** A cost-effectiveness analysis was developed, using a Markov model with a time horizon of 2 years divided into 24 monthly cycles, the measure of effectiveness was determined as the years gained free survival (PFS), being an advanced cancer is significant, only were measured direct medical costs, an analysis of incremental cost-effectiveness was performed. To test the robustness of the model a deterministic and probabilistic sensitivity analysis was performed. **RESULTS:** The cost per patient using therapy with hydralazine LP magnesium valproate (Transkrip ®) is $ 142,109.93, gaining 0.8846 years in Progression free survival this treatment was more effective but more expensive, paclitaxel had a cost of $ 26,988.64 with 0.3631 years in PFS, this therapy is less expensive but more effective than all comparators. The ICER of (Transkrip ®) was $ 220.757 pesos per year in PFS versus paclitaxel. **CONCLUSIONS:** The economic results of treatment of patients with metastatic cervical cancer, through an epigenetic therapy with hydralazine LP magnesium valproate (Transkrip ®) over a time horizon of two years showed that hydralazine LP magnesium valproate (Transkrip ®) is a cost effective alternative respect to comparators showed a greater response in years of progression-free survival and ICER below of 2 GDP.

PCN143

PRIORITIZATION OF FUTURE OUTCOMES RESEARCH STUDIES IN CHRONIC MYELOID LEUKEMIA: VALUE OF INFORMATION ANALYSIS

Rochau U[1], Kühne F[2], Jahn B[2], Kurzthaler C[2], Corro Ramos I[3], Chhatwal J[4], Stollenwerk B[5], Goldhaber-Fiebert JD[6], Siebert U[7]
[1]*UMIT - University for Health Sciences, Medical Informatics and Technology/ ONCOTYROL - Center for Personalized Cancer Medicine, Hall in Tyrol/ Innsbruck, Austria,* [2]*UMIT - University for Health Sciences, Medical Informatics and Technology, Hall in Tyrol, Austria,* [3]*Erasmus University Rotterdam, Rotterdam, The Netherlands,* [4]*MD Anderson Cancer Center, Houston, TX, USA,* [5]*Helmholtz Center Munich, Neuherberg, Germany,* [6]*Western University, London, WA, USA,* [7]*Medical Informatics and Technology, and Director of the Division for Health Technology Assessment and Bioinformatics, ONCOTYROL, Hall i. T, Austria*

OBJECTIVES: Value-of-Information analysis can help to guide decision about future research priorities: If and what further research is needed? Our aim was to guide decision regarding future outcomes research on parameters related to different regimens for chronic myeloid leukemia (CML). **METHODS:** We updated a previously developed state-transition Markov model of CML, which evaluates seven treatment regimens including tyrosine kinase inhibitors, chemotherapy and stem cell transplantation (SCT). We derived model parameters from published trials data, Austrian clinical, epidemiological, and economic data. We performed a cohort simulation over a lifetime horizon, adopted a societal perspective, and discounted costs and benefits at 3% annually. We calculated the expected value of perfect information (EVPI), partial perfect information (EVPPI), and the population EVPI (PEVPI). Additionally, we examined the expected value of sample information (EVSI) for different trial sizes. **RESULTS:** Three strategies are on the efficiency frontier: imatinibàchemotherapy/SCT, nilotinibàchemotherapy/SCT (140,000 €/QALY) and nilotinibàdasatinibàchemotherapy/SCT (176,000 €/QALY). The EVPI for eliminating all uncertainty resulted in a curve with two peaks. One peak is around a WTP threshold of 150,000 €/QALY (EVPI 4,600 €) and another peak is at 180,000 €/QALY (EVPI 7,700 €). The PEVPI for Austria assuming a 10-year technology horizon was 2.5 million € (WTP 150,000 €/QALY) and 4.5 million € (WTP 180,000 €/QALY). EVPPI identified four parameters most responsible for decision uncertainty: duration of first-line therapy, probability of progressing from chronic phase to accelerated phase, probability of receiving a SCT, and the health-utility after SCT. The EVSI commented on the optimal study size for these parameters given the cost of obtaining information. **CONCLUSIONS:** Acquiring additional evidence could prove valuable for determining optimal treatment regimens for chronic myeloid leukemia. If further research were funded, studies should examine a combination of natural history, treatment, and quality of life parameters, especially the effectiveness of first-line TKI treatment.

PCN144

DECISION ANALYSIS ON THE COST-EFFECTIVENESS OF SEQUENTIAL TREATMENT STRATEGIES FOR PATIENTS WITH CHRONIC MYELOID LEUKEMIA IN THE UNITED STATES

Rochau U[1], Kluibenschaedl M[1], Stenehjem D[2], Kuo KL[2], Oderda G[2], Brixner D[3], Siebert U[4]
[1]*UMIT - University for Health Sciences, Medical Informatics and Technology/ ONCOTYROL - Center for Personalized Cancer Medicine, Hall in Tyrol/ Innsbruck, Austria,* [2]*University of Utah, Salt Lake City, UT, USA,* [3]*UMIT - University for Health Sciences, Medical Informatics and Technology/ ONCOTYROL - Center for Personalized Cancer Medicine/ University of Utah, Hall in Tyrol/ Salt Lake City, UT, Austria,* [4]*Medical Informatics and Technology, and Director of the Division for Health Technology Assessment and Bioinformatics, ONCOTYROL, Hall i. T, Austria*

OBJECTIVES: The first goal was to adapt an existing Austrian decision-analytic model for chronic myeloid leukemia (CML) treatment to the US-American health care context. Secondly, we updated the model with new data and further treatment strategies to identify the most effective and most cost-effective strategy for the treatment of CML patients with different sequential tyrosine kinase inhibitors (TKIs). **METHODS:** We evaluated 18 different treatment strategies within the US-American setting in terms of survival, quality-adjusted survival and costs. For model parameters, data from literature, a US-American expert survey, the Utah Cancer Registry, and economic data from a US-American database were used. Evaluated treatment strategies included imatinib, dasatinib, nilotinib, bosutinib, ponatinib, stem-cell transplantation and chemotherapy. The Markov state-transition model was analyzed as a cohort simulation over a lifelong time horizon, a third-party payer perspective was adopted and a discount rate of 3% was used. Additionally, several deterministic and probabilistic sensitivity analyses were conducted. **RESULTS:** Imatinib without second-line TKI resulted in an incremental cost-utility ratio (ICUR) of $148,700/QALY gained (incremental cost-effectiveness ratio (ICER) of $128,800/Lys) compared to baseline strategy 'chemotherapy'. Imatinib with second-line nilotinib yielded an ICUR of $217,100/QALY gained (ICER $242,200/LY) compared to imatinib without second-line TKI. Imatinib followed by second-line bosutinib had an ICUR of $331,300/QALY gained (ICER $265,100/LY) compared to imatinib followed by second-line nilotinib. Imatinib with second-line dasatinib produced an ICUR of $343,200/QALY gained (ICER $279,600/LY) compared to imatinib with second-line bosutinib. All remaining strategies were excluded due to dominance. ICURs and ICERs obtained from the probabilistic sensitivity analysis deviated up to 6.5% (2.5%) compared to base-case ICURs (ICERs). **CONCLUSIONS:** Based on our analysis and current treatment guidelines, we recommend imatinib followed by second-line nilotinib as the most cost-effective treatment strategy. Our model results may support clinicians and patients in CML treatment decision making.

PCN145

THE COST-EFFECTIVENESS OF BRENTUXIMAB VEDOTIN IN HODGKIN LYMPHOMA IN SWEDEN

Engstrom A
Takeda Pharma Sweden, Solna, Sweden

OBJECTIVES: To assess the cost-effectiveness of using brentuximab vedotin (BV) in treating relapsed or refractory Hodgkin Lymphoma compared to standard chemotherapy and allogeneic stem cell transplant in the Swedish health care setting. Brentuximab vedotin is a novel antibody drug conjugate targeting CD-30 and is indicated for treating relapsed/refractory Hodgkin Lymphoma. **METHODS:** A Markov model with a lifetime horizon was constructed to compare BV to chemotherapy or allogeneic stemcell transplant (alloSCT). The analysis had a societal perspective and included lost productivity using a human capital approach. The model uses comparators relevant to Sweden and all epidemiological and cost parameters were based on Swedish sources. Both costs and effects were discounted at 3% according to Swedish guidelines. Clinical effectiveness for BV was based on pivotal clinical trial results and published data from the literature for the comparators relevant to the reimbursement authorities and to enable long term modelling. Outcomes were measured in QALYs. Uncertainty was addressed both through probabilistic sensitivity analysis and one-way analyses of central variables. **RESULTS:** Brentuximab vedotin dominated alloSCT (i. e a lower treatment cost and a better health outcome) and the ICER when compared to chemotherapy was SEK 419 000 (€47 000). One-way sensitivity analyses showed that the results were stable when central variables were varied. The probabilistic analysis also showed that brentuximab vedotin had a high probability of being the most cost-effective treatment at the accepted threshold values for all scenarios. **CONCLUSIONS:** The ICERs calculated were all below commonly accepted willingness to pay for a QALY in Sweden for both comparator scenarios. Brentuximab vedotin is a cost effective treatment option for relapsed/refractory Hodgkin Lymphoma in the Swedish health care setting.

PCN146

ECONOMIC EVALUATION OF AXITINIB FOR SECOND LINE TREATMENT IN ADULT PATIENTS WITH ADVANCED RENAL CELL CARCINOMA – THE PORTUGUESE CASE

Miguel LS[1], Luz R[2]
[1]*CISEP - ISEG/UL, Lisboa, Portugal,* [2]*Centro Hospitalar Lisboa Central, Lisboa, Portugal*

OBJECTIVES: This study estimated the cost-utility of axitinib after sunitinib failure in adult patients with renal cell carcinoma. Total costs and quality adjusted life years accrued with axitinib was compared to everolimus, the only drug for second line treatment financed by the Portuguese National Health Service. **METHODS:** A 4-week cycle Markov model with three health states (progression free, post progression, and death) was adapted to the Portuguese setting. In the absence of head-to-head clinical trials and the unfeasibility of a standard indirect comparison, relative efficacy was based on a previous simulated treatment comparison. Axitinib trial data on quality of life (utility) was used for the progression free stage and

assumed equal for everolimus, while utilities for the post progression stages were obtained from the literature. Resource use was determined by a panel of five experienced experts to reflect Portuguese clinical practice. Official unit costs were used, following the Portuguese National Health Service perspective. The model adopted a lifetime frame (15 years) with a 5%discount rate. **RESULTS:** Axitinib allowed an increment of 0.20 years of progression free survival, 0.53 years of overall survival, and 0.32 quality adjusted life years compared to everolimus. Despite having a similar daily cost, the use of axitinib implied an incremental cost of 9,100€, mainly due to the increase in progression free survival, that matches second line treatment duration. Consequently the cost per quality adjusted life year was 28,598€. Sensitivity analyses showed that results were robust to model parameters specification, with the main uncertainty source being clinical efficacy. **CONCLUSIONS:** Axitinib increased progression free and overall survival, which allowed patients to benefit from more quality adjusted life years at a cost increase. Overall, it was possible to advocate that axitinib is cost-effective, as the cost per QALY is below commonly accepted thresholds.

PCN147

ECONOMIC EVALUATION OF PACLITAXEL ALBUMIN, PACLITAXEL, AND DOCETAXEL AS A SECOND LINE TREATMENT FOR METASTATIC BREAST CANCER

Gharaibeh M, Malone DC
University of Arizona, Tucson, AZ, USA

OBJECTIVES: Clinical studies have shown that docetaxel to be superior to paclitaxel in overall survival (OS) and progression free survival (PFS) (median OS: 1.28 vs 1.06 year; median PFS: 0.47 vs 0.30 year) for the treatment of patients with metastatic breast cancer progressing after an anthracycline-based regimen. Other studies have shown paclitaxel-albumin extended OS by 9.7 weeks, and TTP by 4 weeks. An economic evaluation based on these two clinical trials was performed to compare paclitaxel albumin, paclitaxel, and docetaxel as a second line treatment for metastatic breast cancer. **METHODS:** A Markov model was conducted using three health states: PFS, progressed, and death to estimate overall survival, cost, life year gain (LYG) and quality adjusted life year (QALY). Efficacy data for the treatments were obtained from the published literature. In the absence of head-to-head trials, comparative efficacy and safety of taxanes were estimated using indirect comparisons. A 3% discount rate for cost and outcomes was used. Cost of chemotherapy, administering, monitoring the disease, loss of productivity, and adverse drug reactions for patients on treatment were included from the US societal perspective. **RESULTS:** Compared to docetaxel, paclitaxel albumin was found to be less expensive ($36,241 vs $73,510) and more effective in term of QALYs (0.782 vs 0.710). The incremental cost effectiveness ratio (ICER) for paclitaxel albumin compared to paclitaxel was $77,670/QALY. The probabilistic sensitivity analysis showed that paclitaxel albumin has 70% probability of being cost effective at $100,000/QALY threshold value. **CONCLUSIONS:** Paclitaxel-albumin is an attractive treatment option for the treatment of metastatic breast cancer in patients who have failed 1st-line treatment for metastatic disease. The primary analysis comparing paclitaxel albumin to docetaxel demonstrated that paclitaxel albumin dominated docetaxel because it was less costly and more effective.

PCN148

COST EFFECTIVENESS ANALYSIS OF TARGETED INTRAOPERATIVE RADIOTHERAPY ALONE (TARGIT-A) IN EARLY BREAST CANCER PATIENTS

Vaidya A[1], Vaidya P[2], Both B[3], Brew-Graves C[4], Vaidya J[4]
[1]*Maastricht University, Maastricht, The Netherlands,* [2]*O-Zone HEOR Consultancy, Maastricht, The Netherlands,* [3]*Carl-Zeiss Meditec AG, Oberkochen, Germany,* [4]*University College London, London, UK*

OBJECTIVES: Whole-breast external beam radiotherapy (EBRT) is normally given over 3-6 weeks after lumpectomy in early breast cancer patients to reduce recurrence and mortality. An individualised risk-adapted approach to adjuvant radiotherapy has been tested in the randomised TARGIT-A trial which tested the efficacy of one dose of radiation to tumour bed during lumpectomy. The objective of the present study was to assess the cost effectiveness of TARGIT-A in these patients. **METHODS:** A model based economic evaluation compared single dose TARGIT-A with current practice of EBRT in UK. A state transition Markov model approach was used to simulate the treatment outcomes in a time horizon of 20 years post-surgery. The primary outcome of interest was quality adjusted life years gained (QALY) and analysis was conducted from the health care payer's perspective. To address decision uncertainty, probabilistic sensitivity analysis was performed. A discount rate of 3.5% was applied to future costs and effects. **RESULTS:** In the Base Case Analysis TARGIT-A was a dominant strategy yielding higher QALYs at a lower cost than EBRT. Discounted EBRT and IORT costs for the time horizon of 20 years were £ 20,926 and £ 14,461 respectively. Discounted incremental QALY gained by use of IORT was 0.0069. Model results were robust to parameter uncertainty and probabilistic results were similar to the deterministic results. Application of the net monetary benefit (NMB) framework revealed higher NMB for TARGIT-A in all Monte Carlo simulations. Cost effectiveness acceptability curves show that TARGIT-A is cost effective at various willingness to pay thresholds. **CONCLUSIONS:** TARGIT-A is a cost effective strategy to treat early breast cancer patients in the UK. Implementation of this one-off radiation treatment within a risk-adapted approach could improve quality of life by sparing them from the protracted course of EBRT, improve compliance, prevent unnecessary mastectomies and save valuable NHS resources.

PCN149

EARLY COST-EFFECTIVENESS MODELING FOR TUMOR INFILTRATING LYMPHOCYTES (TIL) -TREATMENT VERSUS IPILIMUMAB IN METASTATIC MELANOMA PATIENTS

Retèl VP[1], Steuten LMG[2], Mewes JC[2], van Harten WH[2]
[1]*Netherlands Cancer Institute, Amsterdam, The Netherlands,,* [2]*University of Twente, Enschede, The Netherlands*

OBJECTIVES: Metastatic melanoma has a poor prognosis with 10 year survival being <5%. Standard therapy is the effective but costly Ipilimumab. An emerging 1st line treatment is Tumor Infiltrating Lymphocytes (TIL), with response rates >50% and expected survival rates of 25%-42% versus 45% (1yr) and 23,5% (2yr) for Ipilimumab. TIL is highly personalized, however complex and requests substantial upfront investments from the hospital in expensive lab-equipment, staff expertise and training, as well as extremely tight hospital logistics. Therefore, an early health economic modelling study, supporting a Coverage with Evidence Development (CED) program, was performed. **METHODS:** We used a Markov decision model to estimate the expected costs and outcomes (quality adjusted life years; QALYs) for TIL versus Ipilimumab in metastatic melanoma patients from a societal perspective over a life long time horizon. Three mutually exclusive health states (stable disease, progressive disease and death) were modelled, divided in first and second line treatment. Technical failures and non-compliance were incorporated to reflect the dynamic nature of the technology. To inform further research prioritization, Value of Information (VOI) analysis was performed. **RESULTS:** TIL is expected to yield more QALYs compared to Ipilimumab (0.99 vs 0.52 respectively) at lower total costs (€83,588 vs €87,834 respectively). Based on current information TIL has a probability of 88% for being cost effective at a cost/QALY threshold of €30,000. Expected Value of Perfect Information (EVPI) amounted to €1,2 million. Partial EVPI (EVPPI) was highest for survival data (€550,000). Expected Value of Sample information was estimated €355,000 for an optimal sample size of n=50. **CONCLUSIONS:** TIL is expected to improve QALYs compared to Ipilimumab at lower incremental cost and has the highest probability of being cost-effective. To reduce decision uncertainty, a future clinical trial to investigate survival seems most valuable, and should preferably be undertaken as part of a CED program.

PCN150

A COST EFFECTIVNESS ANALYSIS OF EVEROLIMUS COMPARED WITH AXITINIB IN THE TREATMENT OF METASTATIC RENAL CELL CARCINOMA IN THE UNITED KINGDOM

Chandiwana D[1], Perrin A[2], Sherman S[2]
[1]*Novartis Pharmaceuticals UK Limited, Camberley, UK,* [2]*Analytica LA-SER International, Inc, New York, NY 10018, NY, USA*

OBJECTIVES: This study assessed the cost-effectiveness of everolimus versus axitinib for the treatment of advanced metastatic renal cell carcinoma (mRCC) in the United Kingdom (UK). **METHODS:** A Markov model was developed with three health states: stable disease, disease progression and death. The model time horizon was 12 years and a UK NHS perspective was considered. There are no head to head studies comparing everolimus with axitinib, thus evidence from a weighted adjusted indirect analysis based on the RECORD-1 and AXIS trials was used to compare progression-free survival (PFS) for everolimus versus axitinib. Survival distributions for PFS were fitted to the post-matched population and fit statistics were generated. As overall survival (OS) data were not available from the AXIS trial at the time of the indirect analysis, the model assumed that the OS for axitinib was equivalent to that of everolimus, based on OS from the RECORD-1 trial. The Weibull survival distribution was used for both PFS and OS. Quality of life data were derived from the Swinburn et al. study and drug costs were obtained from the British National Formulary. **RESULTS:** Everolimus resulted in a progression-free life expectancy of 0.60 years compared to 0.57 with axitinib. Everolimus resulted in 0.65 QALYs compared to 0.63 QALYs for axitinib. Active drug costs were £8,105 for everolimus and £25,723 for axitinib. Total costs were higher for axitinib (£42,533) compared to everolimus (£24,387). The cost difference reflects the higher treatment costs per month and longer treatment duration for axitinib compared to everolimus. Therefore, the incremental cost of axitinib compared with axitinib was -£18,146, highlighting that everolimus is less expensive. The incremental cost per QALY gained was -£1,048,954. **CONCLUSIONS:** This cost-effectiveness analysis demonstrates that everolimus likely dominates axitinib, i.e. it is more effective and less expensive compared with axitinib in the treatment of mRCC.

PCN151

COST-MINIMIZATION ANALYSIS OF TRASTUZUMAB INTRAVENOUS VERSUS TRASTUZUMAB SUBCUTANEOUS FOR THE TREATMENT OF PATIENTS WITH HER2+ EARLY BREAST CANCER AND METASTATIC BREAST CANCER IN GREECE

Mylonas C[1], Kourlaba G[2], Fountzilas G[3], Skroumpelos A[4], Maniadakis N[1]
[1]*National School of Public Health, Athens, Greece,* [2]*Collaborative Center for Clinical Epidemiology and Outcomes Research (CLEO), Athens, Greece,* [3]*Aristotle University of Thessaloniki School of Medicine, Thessaloniki, Greece,* [4]*Roche (Hellas) S.A., Athens, Greece*

OBJECTIVES: To conduct an economic evaluation comparing Herceptin subcutaneous formulation (Herceptin-SC) with -Herceptin intravenous formulation (Herceptin-IV), in the treatment of patients with human epidermal growth factor receptor 2-positive (HER2+) early and metastatic breast cancer (EBC-MBC), in the Greek health care setting. **METHODS:** A cost-minimization model was developed to compare the total cost of care, from the hospital perspective, for new and existing patients, over 18 cycles therapy course. Total cost of therapy reflects drug acquisition cost, consumables dispensed, hospital overheads, physician and other staff time. Costing data were obtained from official Government sources (in 2014) and resource utilization data from a local validation of an international time and motion study. Due to the short time horizon of the study, costs were not discounted. **RESULTS:** The mean total cost of therapy per patient on Herceptin-IV was estimated at €24,163 compared to €23,042 per patient receiving Herceptin-SC. Drug acquisition costs accounted for €22,630 and €22,579 of total therapy costs for Herceptin-IV and Herceptin-SC, respectively. Following drug acquisition costs, the administration cost was €518 and €161 for Herceptin-IV and Herceptin-SC, respectively. Moreover, the central venous access device cost was €290 and €0 of the total costs of Herceptin IV and Herceptin SC, respectively. Finally, overhead costs made up approximately €725 of the total cost for Herceptin-IV and €302 for Herceptin-SC. Sensitivity analysis showed that the results of the model were sensitive to drug acquisition costs and patient weight. **CONCLUSIONS:** The cost of treatment with Herceptin-SC is